AVERLOGIC

AL37204

Video ASIC for 4 Channel multiplexing

Applications

Time Division Multiplexer
Digital Video Recorder
Video Server

General Description

AL37204 is an ASIC solution for QUAD, Color Multiplexer, DVR and Video Server in CCTV system. It can support 4 camera inputs multiplexer for triplex operation. The input data interface is CCIR656 4:2:2 8-bit format. It has (Max.) 3 output paths for flexible combination of live/ spot monitoring, play and VCR/DVR recording. The output data interface has the analog s-video/ composite/ RGB progressive and digital CCIR656 YUV 4:2:2 8-bit and progressive RGB 4:4:4 24-bit video formats in NTSC/PAL video system. (NTSC: 30 frame/sec, PAL: 25 frame/sec). Direct memory access (DMA) allows image data to be uploaded to PC. DDR memory is supported via a direct video frame buffer interface for quick replay. Via serial I^2C interface or host parallel bus, the fully programmable register sets allow flexible control of the video window overlay, OSD display, VBI, and input/output channel source selection etc.

More features offered include PIP, POP, channel freeze, scaling down, re-play function, OSD function, VBI decoding and encoding, zooming with H/ V linear interpolation, anti-rolling, image panning/ flipping/ mirroring, channel switching, priority (weighting) recording, GOP recording for DVR, video loss/ blind detection and motion detection that increase the value of a high quality system designn.

External Device Interface

- Image CODEC Interface
- AL37204 to achieve 4-ch multiplexer
- 8 bit Host Parallel interface & I2C serial interface
- 16-bit DDR Interface (256/512M bit, 133MHz)
- Color Video Decoder/Encoder Interface

Electric Characteristic

- Operating voltage: 1.8 volt (Core), 3.3 volt (I/O)
- Operating temperature range : 0℃ ~ 70℃
- 216 Pin LQFP package
- 27 MHz main clock
- Low power

General Features

- Support NTSC and PAL standards
- Triplex operation support real-time monitoring, recording, and playback independently
- 4 channels live multiplexing with 1 chip, 8/16 channels non-real-time multiplexing with 1 chip (NTSC: 30 frame/sec, PAL: 25 frame/sec)
- Programmable size/location, panning flipping, mirroring and tilting for every channel
- Internal scaling function (1/2, 1/3, 1/4, 2/3, 3/4)
- Support PIP /POP, and anti-rolling channel switching
- Individual channel freeze operation
- Support linear Zooming function for monitoring and playback modes(with independent vertical and horizontal linear interpolation)
- Embedded internal OSD; BMP Image overlay and flexible font display
- Direct connection to video decoder/ encoder, TV monitor, VCR, MPEG/M-JPEG CODEC IC
- No dirty frame during channel switching under monitoring, recording and playback mode
- Support DDR (16-bit) interface more 4G bits memory
- Support 4/ 8/ 16 channels GOP recording function of full, semi-full channel and QUAD frame output
- Priority (weighting) recording of special event channels (internal or external alarms)
- Support individual channel video loss/ blind detection; last still image displayed at the specified channel when video-loss detected
- Support individual channel motion detection in hardware and software; programmable motion area/ velocity/ sensitivity
- Last image captured before alarm events triggered for individual channel
- More Programmable settings for special alarm events
- Support channel-switching (Max. 4 channel per decoder) feature at front video decoder
- Programmable brightness, contrast and saturation function
- VBI insertion and extraction
- Channel index information access and control by
- host interface
- Individual channel replay function directly from
- DDR memory
- Support VCR/ DVR playback
- React VCR/ DVR external triggering signal in time-lapse recording mode
- Programmable channel indexing for recording

Application Block Diagram
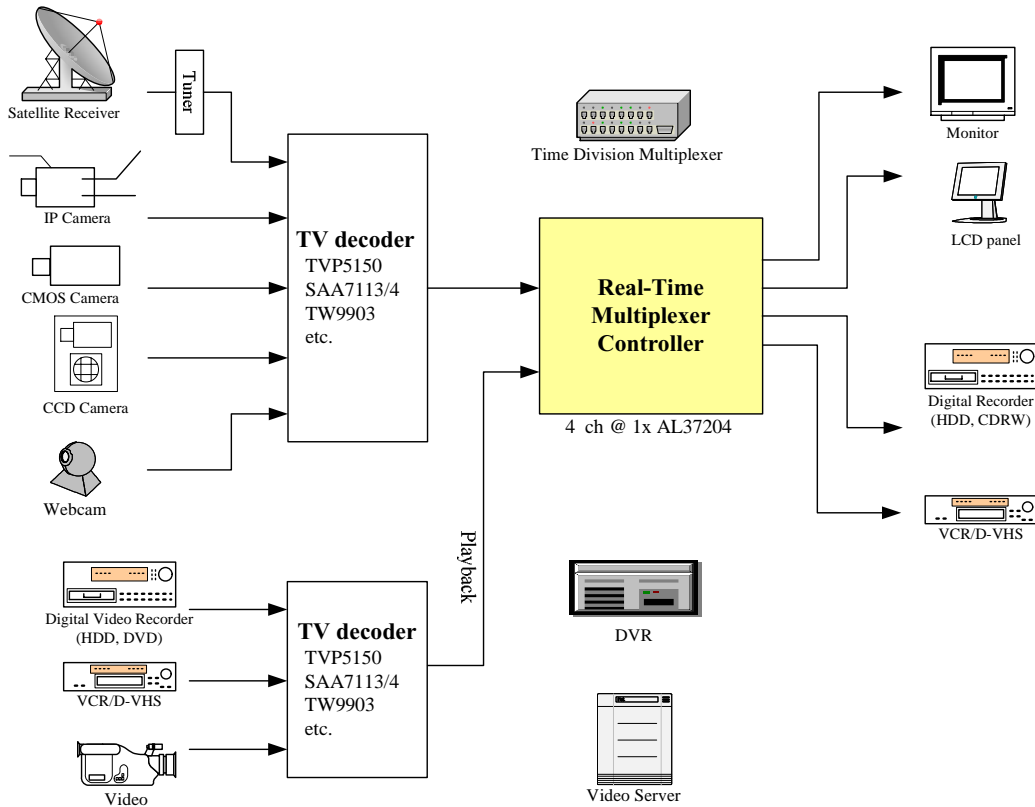
More Features

The AL37304 OSD windows provide overlay of various graphic images like pop-up menu, camera index, programmable bitmap or message text, etc. High quality multi-channel and adjustable zoom display with less aliasing provides full control of digital magnification of any camera for closer view. It can output the digital YUV and RGB format at the same time for monitoring, recording and compression. Advanced motion detection with programmable detection mask and sensitivity level of each camera. Accessible register/data of moving vector for tracking. User can decide which image frame will be displayed or recorded on monitor/VCR/- DVR output when events triggered. It supports 4/8/16 Channel GOP recording (Max. 15 frame/Group, ≥ 1.5G bits) and >256 fields (>12 G bits) for replay. It can support 4 x 1G bits memory in total. Proprietary priority (weighting) recording makes the interested channels almost like live recording with minor controllable loss of other channels recording. Flexible alarm handling for priority (or exclusive) alarm events recording and monitoring at individual channel. All input channels including camera and playback channels will support replay feature.

AverLogic's proprietary digital and analog signal processing technologies create a high quality tear free, flicker free and anti-aliasing display. The AL37204 provides a cost-effective and flexible solution for all applications of security related system.

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